

ANNUAL STATISTICAL RETURNS
AND
SHORT NOTES ON VACCINATION
IN
BIHAR AND ORISSA

FOR THE YEAR

1918-1919

BY

S. N. TIWARI, D.P.H.,

Offg. Sanitary Commissioner, Bihar & Orissa.



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ANNUAL
VACCINATION REPORT
BIHAR AND ORISSA

for the year,

1918-19.

1. Staff.—Major W. C. Ross, I.M.S., was in charge of the Department from 1st April to the 30th November 1918 and Dr. S. N. Tiwari, from the 1st December 1918 to 31st March 1919.

The office of the Deputy Sanitary Commissioner, North Bihar Circle, was held by Dr. B. P. Mazumdar, throughout the year, and Dr. T. Sebastian, remained in charge of the Chota Nagpur and Orissa Circle and in supervising charge of the Vaccine Depôt during the year.

The office of the Deputy Sanitary Commissioner, South Bihar Circle, was held by :—

- (1) Dr. S. Maitra—from 1st to 30th April 1918.
- (2) Dr. B. P. Mazumdar—from 1st May to 20th September 1918, in addition to his own duties as Deputy Sanitary Commissioner, North Bihar Circle.
- (3) Dr. S. N. Tiwari—from 21st September to 31st March 1919.

The inspecting staff consisted of 20 District Inspectors of Vaccination and 66 Sub-Inspectors of Vaccination (including 3 deputed for duty at the Vaccine Depôt) in addition to the 2 Sub-Assistant Surgeons combining vaccination inspection with other duties in Angul. During the year two additional appointments of Sub-Inspectors were sanctioned for the Dhanbad Subdivision in the district of Manbhum. The total number of Vaccinators employed in the province during the year was 1,059 licensed and 208 paid, against 1,049 licensed and 208 paid in the previous year.

In Municipalities and in the districts of Puri, and Angul, vaccination was done by paid Vaccinators; but otherwise the work throughout the province was carried out under the licensing system, except for the employment of paid Vaccinators for short periods to deal with outbreaks of small-pox.

Heretofore Vaccination, in Sambalpur District, was done by paid Vaccinators; but licensing system was introduced from the last working season.

2. Operations performed.—The total number of operations performed during the year amounted to 972,423 as compared with 1,097,676 last year. The decrease amounts to 125,253 which was due to the widespread prevalence of influenza in the whole of the province during the last working season.

Of the total number of operations in the province, 953,535 were performed by the Vaccination Department as compared with 1,084,031 last year. 914,761 operations were primary and 38,774 revaccinations against 1,055,374 primary and 28,657 revaccinations last year.

There was a decrease of 140,613 in the primary operations and an increase of 10,117 in the revaccination during the year.

Of the total operations performed (953,535), 929,964 equal to 97·52 per cent were successful as compared with 1,061,531 equal to 97·92 last year.

The number of operations performed in Municipalities was 43,537 as compared with 41,362 last year.

The number of successful operations in Municipalities was 35,213 for primary and 2,772 for revaccination, as compared with 35,570 and 3,043 respectively last year. The ratios of success in Municipalities were 96·28 per cent for primary and 39·80 per cent for revaccination as compared with 96·23 per cent for primary and 69·12 for revaccination. The number of operations performed in rural areas was 909,998 as compared with 1,042,669 last year. Of the former, 878,188 were primary and 31,810 revaccination against 1,018,414 primary and 24,255 revaccination last year. The number of successes was 870,804 for primary and 21,175 for revaccination against 1,008,095 for primary and 14,823 for re-vaccination last year; the ratios of successes being 99·15 primary and 66·56 revaccination as compared with 98·98 primary and 61·11 revaccination last year.

3. Vaccination in districts.—There was a fall of 16,825 operations in the Patna Division as compared with last year, which was shared by the district of Shahabad (10,664) and that of Gaya (6,206).

With the exception of the district of Muzaffarpur, there was a general fall in the operations in all other districts of Tirhut Division, viz., Saran 11,806, Champaran 1,447, and Darbhanga 6,527. Muzaffarpur recorded an increase of 902 operations.

All the districts of the Bhagalpur Division recorded a decrease in the number of operations with the exception of Purnea which showed an excess of 5,721 operations due perhaps to less prevalence of influenza there. The marked decrease was in the district of Monghyr (11,856).

In Orissa Division all the districts show a decrease in the number of operations; the greatest being in Sambalpur (9,880) and Cuttack (9,712).

There was a general fall in the number of operations in this Division, the greatest being in Ranchi (14,310) and Manbhum (13,222).

4. Vaccination in towns and compulsory areas.—During the year under report the Vaccination Acts were extended to Garhwa Union in Palamau, Dhanbad in Manbhum and Chakradharpur Municipality in Singhbhum. Statement VII shows that during the year, 17,939 children under one year of age, out of an available number of 26,332 or 68·12 per cent were successfully vaccinated.

During the last three years the towns of Bhagalpur and Darbhanga have shown the smallest proportion of work done and the towns of Gaya, Chapra, Monghyr, Cuttack and Balasore have given unsatisfactory returns.

5. Work done in the Native States under the supervision of the Political Agent.—The following tabulated statement shows the results for the last 13 years :—

Year.					Total number of vaccinations.	Total number of revaccinations.
1					2	3
1906-07	...	...	...	...	165,967	43,498
1907-08	...	...	...	...	187,150	69,685
1908-09	...	...	...	...	226,042	97,078
1909-10	...	...	...	...	269,728	142,911
1910-11	...	...	...	...	310,962	163,162
1911-12	...	...	...	...	341,701	179,688
1912-13	...	...	...	...	387,190	215,438
1913-14	...	...	...	...	430,720	261,225
1914-15	...	...	...	...	419,562	260,707
1915-16	...	...	...	...	454,699	281,913
1916-17	...	...	...	...	504,948	311,670
1917-78	...	...	...	...	526,410	330,938
1918-19	...	...	...	...	426,717	269,970

6. Protection of Infants.—During the year under report the number of children available for vaccination was 944,025 and the number of successful operation was 346,974 equal to 367 per thousand, against 499,705 or 446 per thousand successful operations out of 1,119,606 children available during the last year.

The protection of infants in Municipalities is separately shown in statement VII. It gives a ratio of 681 per thousand of the surviving infant population as compared with 690 in the last year.

7. Incidence and mortality of small-pox.—During the last ten years the total number of deaths from small-pox in the districts of this province has been 75,731.

During the first quinquennium the number of deaths were 29,490 and during the second 46,241. In the last quinquennium the mortality was as follows :—8,979, 14,628, 9,742, 6,687 and 6,205.

The provincial ratios of the mortality from small-pox per 1,000 of population during the last five years have been .22, .42, .28, .19 and .17 respectively.

8. Prevention of small-pox.—Much has been done in the past to prevent small-pox and the mortality from it now, as compared with the pre and early-vaccination days, has been reduced considerably. But it appears from the figures quoted in paragraph above that the decline in the death-rate from small-pox has now come to a degree beyond which it does not show much inclination to fall except in the areas where Vaccination Act has been made compulsory and there the decline is progressive.

Vaccination as a measure for prevention of small-pox has proved its efficacy beyond all doubt and the Vaccination Acts, enforcing compulsory vaccination, have been introduced in all Municipal towns and other important places—like Dhanbad—where life is considered more important and objections to its application are considered to be comparatively few. Opposition to vaccination has also gone down considerably, and I do not see much difference between the opposition offered by the urban and the rural populations. Opposition is now shown not so much to vaccination as to vaccination of an infant before twelve months of age.

The attitude of the people towards vaccination in urban and rural areas being almost the same, I agree with my predecessor in recommending that benefits of the Vaccination Acts be extended to rural areas of the province in the same way as they have been extended to urban areas by making them compulsory throughout the province.

9. Inspection of work.—During the year under report the Deputy Sanitary Commissioners inspected 79,610 primary vaccinations as against 155,456 in the previous year. The decline, in the number of vaccinations inspected, is due to the fact that there was no Deputy Sanitary Commissioner in the South Bihar Circle, for vaccination work.

The inspecting work done during the year by the Deputy Sanitary Commissioners has been comprehensive and valuable. They have submitted reports on the efficiency of the staff and the arrangements of work in 15 districts of the province. Action is being taken on these reports in each case.

The Civil Surgeons of the province inspected 52,467 primary and 6,907 revaccination operations against 65,694 primary and 6,385 revaccination last year. According to the existing system of inspection, vaccinated children are collected from villages, falling in a radius of about five or six miles, at places two or three miles apart, on the road through which the inspecting officer travels. The system of requiring vaccinated children to be brought to fixed places for inspection in an area where Vaccination Act is not compulsory, is illegal; and villagers generally resent in bringing their children for inspection, as the Civil Surgeon of Muzaffarpur remarks that “the system of thorough inspection of the work done in the rural areas has suffered by the spirit of independence pervading villagers—resulting in number of children not being produced—even for short distances for the Civil Surgeon’s personal inspection.” It is not possible for Civil Surgeons to pay more attention to the vaccination work as Major M. H. Thornely, I.M.S., the Civil Surgeon of Cuttack, points out that “the multifarious nature of the duties of the Civil Surgeon of Cuttack renders it quite impossible for him to give the time and attention necessary for directing and supervising the vaccination work of this large district with its difficulties of communication.”

The officers of the subordinate inspecting staff are not trained, nor sufficiently paid to attract better class of men. They cannot, therefore, be trusted much. The only other agency for inspection is that of the Deputy Sanitary Commissioners. Their number is, however, limited to three only for the whole province which is evidently not enough for thorough and detailed inspection of the work in the villages. It does not appear to me possible, therefore, that without increasing the superior inspecting staff, the efficiency of the work can be improved very much.

In this connection I would recommend that the creation of the district sanitary service, which has been lately proposed by Government may be taken up early.

10. Supply of Vaccine.—The Vaccine Depot at Namkum supplied the province with vaccine throughout the year.

The following tabulated statement shows the number of doses manufactured, the number of doses issued, the number of doses lost in storage and manufacture and the number of doses in reserve for five years :—

Year.	No. of doses manufactured.	No. of doses issued.	No. of doses lost in storage and manufacture.	No. of doses in reserve.
1	2	3	4	5
1914-15	771,696	541,259	...	230,437
1915-16	3,127,290	1,798,239	...	1,559,488
1916-17	2,842,710	2,017,730	679,294	1,705,174
1917-18	3,778,318	2,250,072	100,306	3,133,114
1918-19	2,156,720	2,333,233	95,000	2,861,601

The number of calves required for operation has been greatly reduced by the improved technique of operation and by better feeding of calves.

The following tabulated statement shows the number of calves purchased or hired, the number of doses manufactured, the average number of doses yielded per calf, the total gross cost, the total revenue and the average net cost per dose for five years :—

Year.	No. of calves purchased or hired.	No. of doses manufactured.	Average No. of doses yielded per calf.	Total gross cost.	Total revenue.	Average net cost per dose.
1	2	3	4	5	6	7
				Rs.	Rs.	Pies.
1914-15	507	771,696	1522.08	19,367	...	4.8
1915-16	1,267	3,127,290	2463.26	34,537	4,637	1.8
1916-17	1,129	2,842,710	2517.90	34,936	13,518	1.4
1917-18	886	3,778,318	4264.45	22,183	16,610	.28
1918-19	399	2,156,720	5405.31	29,685	15,962	1.2

The working cost of the Dépôt for the year amounted to Rs. 29,685-9-6 against Rs. 22,183-0-11 last year.

Two severe epidemics of Rinderpest broke out during the year under report, and prompt steps were taken to check their spread. There were 120 attacks and 23 deaths and the Dépôt had to be closed and calves discharged on both the occasions.

The cost to the Dépôt was greater owing to the rise in the price of all materials.

The loss in revenue was due to a fall of about 80,000 doses of Vaccine in the supply to the Native States.

11. **Experimental work.**—Further experimental work in connection with the manufacture of vaccine was continued during the year. Distilled water was tried as a diluent in place of Glycerine mixture. In the smaller dilutions the pulp and water mixture gave equally good results as the Glycerinated vaccine. In dilutions of 1 in 5 it gave good results when the diluted vaccine was used within two days of the preparation. After this period, the water diluted vaccine appeared to lose potency. The result of the experiment confirms the view that Glycerine serves not only as a diluent but also as a preservative.

Other experiments were done to determine whether crude pulp when rid of moisture by drying and made into vaccine, keeps up potency. The results have been negative. Further experiments will be continued during the rains.

12. Cost of the Department.—The total cost of the Vaccine Department (excluding the Vaccine Dépôt) during the year, as detailed in Statement II, was Rs. 1,10,479 or Rs. 1,737 less than the previous year. The decrease in cost was due to the introduction of licensing system of vaccination in the district of Sambalpur.

The cost per successful operation was Re. 0-1-10 against Re. 0-1-8 in the previous year. The increase in rate is due to the fall in the number of operations.

13. General.—The discipline and work of the staff have been gradually improving. Owing to the wide spread influenza epidemic in the province the anticipated improvements could not be effected.

The staff in general worked fairly well. The work done by the Deputy Sanitary Commissioners in inspecting vaccination and reporting on the efficiency of the staff was very useful. The supervision exercised by Dr. T. Sebastian over the Vaccine Dépôt at Nainkum has resulted in much improvement of that institution for which he deserves commendation.

S. N. TIWARI,

Offg. Sanitary Commissioner.

STATEMENTS.

Statement No. I.—Showing particulars of Vaccination in the

Number.	District.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Total.	
					Male.	Female.	Total.			
1	2	3	4	5	6			7	8	
Patna Division.										
1	Patna ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,609,631	777	{ 15 61	6,289 29,372	5,889 27,145	12,169 56,517	811 926	11,808 56,517
2	Gaya ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,161,010	458	{ 12 82	2,986 25,279	2,481 24,997	5,467 50,276	455 613	5,077 49,699
3	Shahabad ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,865,600	426	{ 9 75	2,120 20,159	1,904 17,221	4,024 37,380	447 498	3,923 37,346
Total of Patna Division		{ By paid Vaccinators ... By licensed Vaccinators ... }	5,636,301	505	{ 36 218	11,395 74,810	10,265 69,363	21,660 144,173	601 661	20,808 143,562
Tirhut Division.										
4	Saran ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,289,778	853	{ 8 7	1,254 33,529	1,142 31,140	2,396 64,660	299 743	2,391 64,660
5	Champaran ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,903,385	510	{ 4 67	1,579 24,152	1,200 23,304	2,779 47,356	694 706	2,150 47,340
6	Muzaffarpur ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,845,514	967	{ 12 75	1,637 43,065	1,610 40,873	3,247 83,938	270 1,119	3,122 83,740
7	Darbhanga ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,929,682	875	{ 7 88	1,331 43,384	1,187 40,811	2,518 84,225	359 957	2,487 84,189
Total of Tirhut Division		{ By paid Vaccinators ... By licensed Vaccinators ... }	9,973,359	791	{ 31 317	5,801 144,121	5,139 136,058	10,940 280,179	353 683	10,150 279,938
Bhagalpur Division.										
8	Monghyr ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,131,381	543	{ 8 39	2,181 26,852	2,755 25,506	4,936 52,358	534 1,745	4,149 52,353
9	Bhagalpur ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,139,318	506	{ 11 63	1,616 27,453	1,431 26,563	3,047 54,021	277 857	2,799 54,007
10	Purnea ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,989,687	398	{ 11 52	4,739 27,875	2,539 24,103	7,269 51,978	631 939	1,889 42,826
11	Santal Parganas ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,882,731	244	{ 6 62	846 23,165	734 23,432	1,580 45,537	243 734	1,479 44,648
Total of Bhagalpur Division		{ By paid Vaccinators ... By licensed Vaccinators ... }	8,143,117	437	{ 33 207	9,382 105,299	6,850 98,604	16,232 203,894	459 1,081	10,316 193,834
Orissa Division.										
12	Cuttack ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	2,100,139	577	{ 11 67	4,900 25,948	2,855 22,728	7,755 48,676	705 726	3,777 46,956
13	Balasore ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,055,538	506	{ 4 30	764 11,474	437 9,649	1,201 21,123	300 704	722 18,693
14	Angul ...	By paid Vaccinators ...	109,405	118	12	4,144	3,398	7,542	628	4,368
15	Puri ...	By paid Vaccinators ...	1,023,402	409	29	18,806	15,803	34,609	1,193	34,237
16	Sambalpur ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	744,193	194	{ 4 29	127 7,589	93 7,531	223 15,119	50 522	193 15,069
Total of Orissa Division		{ By paid Vaccinators ... By licensed Vaccinators ... }	5,131,707	573	{ 60 126	28,741 45,910	22,589 39,908	51,330 84,918	855 673	43,302 80,721

Districts of Bihar and Orissa during the year 1918-19.

Primary Vaccination.				Revaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Successful				Total.	Successful.	Unknown.	Primary.	Revaccination.		Primary.	Revaccination.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.
Under one year.	One year and under six years.	Total of all ages.	Unknown.												
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5,999	5,116	11,296	259	361	146	...	97.80	40.44	42.53	2.10	...	62,197	38.64	584	.26
21,098	34,698	56,262	66	...	...	...	99.66	...		0.11	...				
2,230	2,625	5,023	12	390	370	5	99.56	96.10	25.9	.23	1.28	63,539	30.32	695	.32
16,636	31,899	49,420	62	577	435	41	99.58	81.15		.12	7.10				
2,409	1,308	3,858	26	101	76	4	98.99	78.35	22.31	.66	3.96	56,768	30.43	470	.25
12,774	21,549	37,168	22	34	12	6	99.63	42.88		.05	17.64				
10,647	9,030	20,177	297	852	592	9	98.37	70.22	29.11	1.42	1.05	184,524	32.73	1,749	.31
50,508	88,146	142,870	150	611	447	47	99.62	79.25		.10	7.69				
1,065	1,137	2,202	46	5	4	1	93.91	100.00	28.99	1.92	.20	78,930	34.47	362	.15
22,039	41,589	63,628	592	...	...	...	99.31	...		1.91	...				
1,187	868	2,095	15	629	309	45	98.12	52.92	21.06	.69	7.15	59,370	31.05	198	.10
15,829	30,668	47,216	67	7	7	...	99.86	100.00		.14	...				
1,744	1,239	2,985	48	125	35	11	97.10	30.70	20.34	1.53	8.80	97,514	34.26	368	.12
22,421	60,503	83,220	18	198	112	2	99.40	57.14		.02	1.01				
772	1,687	2,466	6	31	15	...	91.39	48.38	29.51	.24	...	95,192	32.40	645	.22
18,467	65,342	83,848	27	36	30	...	99.66	83.33		.63	...				
4,768	4,931	9,748	115	790	363	57	97.14	49.52	28.89	1.13	7.21	330,993	33.17	1,573	.15
78,786	198,092	277,912	704	241	149	2	99.52	62.34		.25	.82				
1,843	2,223	4,125	16	187	97	2	99.80	52.43	23.54	.38	1.00	89,473	37.75	730	.34
17,344	34,902	52,352	...	5	2	...	96.99	40.00		...	...		
1,140	1,492	2,660	98	243	123	26	98.48	55.40	27.59	3.50	10.48	72,135	33.71	645	.30
24,920	29,002	53,963	5	14	11	...	99.93	78.71		.609	...				
945	894	1,860	3	5,380	2,868	89	98.06	54.19	27.24	.16	1.63	51,559	27.42	755	.37
21,883	20,580	42,611	33	9,152	6,870	21	99.52	75.06		.07	.22				
555	777	1,434	11	104	39	11	94.26	4.33	24.77	.74	10.89	55,821	29.11	530	.28
25,523	18,708	44,472	125	889	517	2	99.60	58.15		.28	.22				
4,483	5,386	10,079	18	5,916	3,127	127	98.33	54.01	26.27	1.24	2.14	262,988	32.29	2,660	.32
89,670	103,192	192,358	163	10,020	7,400	23	98.28	73.72		.08	2.28				
1,188	2,095	3,574	179	3,973	1,069	759	99.08	33.24	24.58	4.79	19.08	94,608	44.85	953	.45
18,956	26,059	44,358	437	1,720	607	421	99.65	46.72		.08	24.47				
258	370	685	10	479	203	96	96.65	77.28	19.82	1.38	17.93	41,785	39.58	460	.46
3,664	13,198	18,339	243	2,427	1,559	513	99.11	80.98		1.29	21.13				
2,031	1,995	4,039	108	3,174	2,712	94	94.81	83.05	33.85	2.47	2.96	8,299	41.60	7	.03
10,123	20,136	33,138	745	372	220	70	95.92	74.83		2.17	18.81				
160	38	193	...	25	1	9	100.00	6.25	20.64	...	36.00	23,702	31.61	324	.43
11,199	3,729	14,954	80	50	37	...	99.76	74.00		.53	...				
13,760	21,638	41,634	1,033	8,028	4,295	1,028	98.49	61.35	24.68	2.38	12.80	204,904	39.92	1,988	.35
34,119	42,986	79,601	760	4,197	2,194	934	99.54	67.23		.94	22.25				

Number.	District.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Total.	
					Male.	Female.	Total.			
1	2	3	4	5	6			7	8	
Chota Nagpur Division.										
17	Hazaribagh ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,288,609	183	{ 4 45	682 17,056	633 16,334	1,315 33,390	328 742	1,223 33,382
18	Ranchi ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,387,073	194	{ 3 50	2,125 15,195	681 14,696	2,806 29,891	935 598	1,301 28,958
19	Palamau ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	687,710	139	{ 4 27	1,385 8,032	651 7,411	2,036 15,443	509 572	754 14,719
20	Manbhum ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	1,547,576	373	{ 24 48	6,541 14,630	5,025 13,049	11,566 27,679	481 576	10,022 26,598
21	Singhbhum ...	{ By paid Vaccinators ... By licensed Vaccinators ... }	694,394	178	{ 6 21	957 7,673	528 6,925	1,485 14,598	217 695	785 14,380
Total of Chota Nagpur Division.		{ By paid Vaccinators ... By licensed Vaccinators ... }	5,605,362	206	{ 41 191	11,690 62,586	7,518 58,415	19,208 121,001	468 633	14,089 118,041
Total of Vaccine Department.		{ By paid Vaccinators ... By licensed Vaccinators ... Total ... }	34,489,846	414	{ 204 1,059 1,263	67,009 431,817 498,826	52,361 402,348 454,709	119,370 834,165 953,535	585 787 754	98,665 816,096 914,761
Total Dispensary Department		...	...	...	1	66	75	141	139	
Total Railways		...	...	...	...	593	276	869	...	732
Total Cooly Department		...	...	...	1	2,951	2,192	5,143	(a) 2,323	1,183
Total Jails and Cantonments		...	...	...	2	12,187	548	12,735	(b) 409	2,269
Grand Total		...	...	...	1,267	514,623	457,800	972,423	768	919,084

(a) Balasore only.
(b) Cantonments only.

Primary Vaccination.				Re-vaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Successful.				Total.	Successful.	Unknown.	Primary.	Re-vaccination.		Primary.	Re-vaccination.	Number.	Rate per 1,000.	Number.	Rate per 1,000.
Under one year.	Over one and under six years.	Total of all ages.	Unknown.												
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
541	648	1,205	5	92	60	15	98.93	77.01	} 27.65 {	.41	16.30	} 45,739	35.49	214	.16
19,566	13,515	33,346	1	5	...	...	99.98	...		...	...
906	392	1,298	...	1,501	751	9	99.46	50.03	} 22.97 {	...	.59	} 49,364	35.59	71	.05
22,649	6,103	28,958	1	932	753	12	100.00	81.84		.003	1.28				
240	412	703	23	1,282	1,227	33	96.16	98.23	} 29.76 {	3.05	2.57	} 26,806	38.98	79	.11
9,822	4,614	14,661	52	724	698	7	99.95	97.35		.35	.93				
1,960	6,668	8,922	654	1,544	998	112	95.23	70.11	} 24.42 {	6.52	7.25	} 58,082	37.53	419	.27
13,652	12,794	26,522	25	1,081	467	65	99.80	45.96		.09	6.01				
356	380	745	9	700	323	71	96.00	52.07	} 22.38 {	1.14	10.57	} 20,846	30.02	113	.16
10,341	3,896	14,298	24	218	100	1	99.42	45.87		.16	.45				
4,003	8,500	12,873	691	5,119	3,362	253	96.08	66.09	} 24.62 {	4.94	4.94	} 200,837	35.82	896	.16
76,230	40,958	117,785	103	2,960	2,018	85	99.87	70.19		.08	2.87				
37,661	52,494	94,511	2,264	20,705	11,739	1,474	98.03	61.01	} 23.96 {	2.29	7.11	} 1,184,159	34.33	8,866	.25
329,313	473,374	811,506	1,880	18,069	12,208	1,091	99.66	71.90		.23	6.03				
346,974	525,868	906,017	4,144	38,774	23,947	2,565	99.49	66.13		.45	6.61				
50	89	139	...	2	...	2	100.00	...	...	...	100.00	...	...	...	...
606	124	630	2	137	93	5	86.30	70.45	...	.27	3.64	...	...	...	...
...	200	606	577	3,960	2,214	1,746	100.00	100.00	...	48.77	44.09	...	...	...	...
222	149	1,902	181	10,466	6,822	602	91.91	69.16	...	7.97	5.75	...	...	...	...
347,852	526,330	909,294	4,904	53,339	33,076	4,920	99.46	68.31	...	.53	9.22	...	...	...	...

Summary.

	Total number of persons vaccinated.		Total number of operations performed.		Percentage of successful cases in which the results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Ratio of successful vaccinations per 1,000 of population.	Total cost of Department.	Average cost of each successful case.
	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under one year.	One and under 6 years.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BY SPECIAL STAFF.												Rs. a. p.	Rs. a.
Statement (I) ...	9,14,761	38,774	9,14,761	38,774	99.49	98.13	1,263	764	346,974	525,868			
BY DISPENSARY STAFF.													
Statement III ...	139	2	139	2	100.00	...	(a) 1	139	50	89	26.96	110,479 5 6	0 1 10
BY OTHER AGENCIES.													
Railways, Cooly Depot, Jails and Cantonments.	4,184	14,563	4,184	14,563	91.64	74.84	(b) 3	1,047	828	373			
Total ...	9,19,084	53,339	9,19,084	53,339	99.46	68.81	1,267	769	347,852	526,330	26.96	110,479 5 6	0 1 10

(a) Darbhanga only.

(b) Cooly Department and Cantonments only.

STATEMENT II.

Statement No. II.—Showing the cost of vaccination in the

No.	Circle and district.	European supervising officer.	Expen										
			Pay.	Native supervising officer.	Pay.	Paid vaccinators.	Pay.	Licensed vaccinators.	Pay.	Clerks.	Pay.	Peons, etc.	Pay.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
					Ra. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.		Rs. a. p.
PATNA DIVISION.													
1	Patna ... ..	...	...	6	1,821 11 4	16	1,399 0 0	61	...	...	...	1	36 0 0
2	Gaya ... ..	...	...	5	1,881 0 0	12	1,133 2 9	82	...	...	...	2	144 0 0
3	Shahabad ... ..	...	...	5	2,302 9 4	9	1,001 9 3	73	...	...	...	...	...
	Total of Patna Division	...	...	16	6,005 4 8	37	3,623 12 0	218	...	...	...	3	180 0 0
TIRHUT DIVISION.													
4	Saran ... ..	...	...	4	2,053 0 0	8	660 0 0	87	180 0 0	...	...	...	...
5	Champaran ... ..	...	...	3	1,162 11 10	4	412 8 0	67	7 8 0	...	...	...	...
6	Muzaffarpur ... ..	...	...	4	1,460 0 0	12	764 10 8	75	69 15 7	...	...	...	...
7	Darbhanga ... ..	...	...	4	1,456 2 8	8	589 0 0	83	...	1	60 0 0	...	...
	Total of Tirhut Division	...	...	15	6,131 14 6	32	2,417 2 8	317	257 7 7	1	60 0 0	...	...
BHAGALPUR DIVISION.													
8	Monghyr ... ..	...	...	4	1,532 0 0	8	713 0 0	30	...	...	...	2	108 0 0
9	Bhagalpur ... ..	...	...	5	2,664 5 7	11	1,198 6 0	63	...	...	...	...	...
10	Purnea ... ..	...	...	4	1,424 5 0	11	1,282 12 11	52	...	...	...	...	...
11	Santal Parganas ... ..	...	...	7	2,448 3 3	6	777 0 0	62	...	...	...	...	...
	Total of Bhagalpur Division...	...	...	20	8,068 13 10	36	3,971 2 11	207	...	...	...	2	108 0 0
ORISSA DIVISION.													
12	Cuttack ... ..	...	...	4	1,432 10 2	11	1,271 0 8	67	...	...	...	...	...
13	Balasore ... ..	...	...	3	1,398 2 5	5	479 0 0	30	20 0 0	...	...	...	...
14	Angul ... ..	...	...	3	2,592 6 0	12	1,653 12 0	...	...	...	...	...	...
15	Puri ... ..	...	...	3	1,117 0 0	29	3,658 4 0	...	...	...	...	...	...
16	Sambalpur ... ..	...	...	3	1,067 8 0	4	1,121 0 10	29	...	...	...	2	10 0 0
	Total of Orissa Division	...	...	16	7,607 10 7	61	8,183 1 6	126	20 0 0	...	...	2	10 0 0
CHOTA NAGPUR DIVISION.													
17	Hazaribagh ... ..	...	...	4	1,463 1 0	4	317 3 5	45	...	...	...	...	...
18	Ranchi ... ..	...	...	5	1,646 0 0	4	541 0 0	50	...	...	...	...	...
19	Palamau ... ..	...	...	3	1,198 8 6	4	489 14 10	27	...	...	...	...	...
20	Manbhum ... ..	...	...	3	1,313 0 0	24	2,020 1 11	48	...	...	...	...	...
21	Singhbhum ... ..	...	...	3	1,252 13 9	6	334 12 11	21	...	...	...	...	...
	Total of Chota Nagpur Division	...	...	18	6,893 7 3	42	3,703 1 1	191	...	...	...	...	...
	Total of Vaccine Circle	...	...	85	34,707 2 10	208	21,898 4 2	989	277 7 7	1	60 0 0	7	298 0 0
	ESTABLISHMENT OF THE DEPUTY SANITARY COMMISSIONER, NORTH BIHAR CIRCLE.	...	...	1	7,329 1 8	...	.....	...	...	2	831 3 11	2	225 6 8
	Ditto SOUTH BIHAR CIRCLE	...	...	1	2,320 0 0	...	.....	...	...	2	969 0 0	3	293 6 7
	Ditto CHOTA NAGPUR AND ORISSA CIRCLE,	...	...	1	7,456 8 9	...	.....	...	...	2	895 14 1	2	192 0 0
	Total	...	...	3	17,105 10 5	...	.....	...	...	6	2,696 2 0	7	710 13 3
	Total of Province	...	...	88	51,812 13 3	208	21,898 4 2	1,059	277 7 7	7	2,756 2 0	14	1,008 13 3

Province of Bihar and Orissa during the year 1918-19.

diture.					Paid from						Number of all successful vaccinations and re-vaccinations.	Average cost of each successful case.
Total pay of establishment.	Travelling allowance.	Contingencies.		Total cost.	Imperial Fund.	Provincial Fund.	Local Fund.	Municipalities.	Native States.	Total.		
13	14	15	16	17	18	19	20	21	22	23	24	25
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
3,256 11 4	1,223 14 0	...	207 7 0	4,683 0 4	...	3,182 11 10	480 0 0	1,025 4 6	...	4,688 0 4	68,535	0 1 1
3,158 2 9	1,376 5 4	...	258 13 3	4,793 5 4	...	3,377 5 4	806 8 9	609 7 3	...	4,793 5 4	56,114	0 1 4
3,394 2 7	401 15 6	...	199 4 3	3,995 6 6	...	2,827 3 0	480 0 0	688 3 6	...	3,995 6 6	41,625	0 1 6
9,809 0 8	3,002 3 0	...	635 8 6	13,476 12 2	...	9,387 4 2	1,766 8 9	2,323 15 3	...	13,476 12 2	166,274	0 1 3
2,893 0 0	463 13 0	...	206 2 0	3,562 15 0	...	2,616 13 0	180 0 0	766 2 0	...	3,562 15 0	66,443	0 0 10
1,582 11 10	1,135 9 8	...	92 2 6	2,810 8 0	...	2,390 7 6	120 0 0	300 0 6	...	2,810 8 0	50,191	0 0 10
2,294 10 3	1,311 6 3	...	212 14 0	3,818 14 6	...	2,984 4 3	69 15 7	764 10 8	...	3,818 14 6	86,634	0 0 8
2,096 2 8	1,085 2 3	...	121 0 0	3,302 4 11	...	2,631 4 11	160 0 0	511 0 0	...	3,302 4 11	86,555	0 7 0
8,866 8 9	3,995 15 2	...	632 2 6	13,494 10 5	...	10,622 13 8	529 15 7	2,341 13 2	...	13,494 10 5	289,853	0 0 9
2,353 0 0	1,407 0 0	...	192 0 0	3,952 0 0	...	3,011 0 0	261 0 0	680 0 0	...	3,952 0 0	56,576	0 1 1
3,862 11 7	612 14 0	...	213 5 1	4,688 14 8	...	3,371 6 7	574 8 0	743 0 1	...	4,688 14 8	59,034	0 1 3
2,707 1 11	1,262 11 7	...	132 7 9	4,102 5 3	...	2,747 0 7	610 12 11	744 7 9	...	4,102 5 3	54,209	0 1 1
3,225 3 3	2,061 2 2	...	173 3 0	5,459 8 5	...	4,604 3 5	270 0 0	565 5 0	...	5,459 8 5	46,659	0 1 10
12,148 0 9	5,343 11 9	...	710 15 10	18,202 12 4	...	13,733 10 7	1,716 4 11	2,752 12 10	...	18,202 12 4	216,478	0 1 4
2,703 10 10	1,024 14 11	...	198 5 6	3,926 15 3	...	2,547 9 1	588 5 1	791 1 2	...	3,926 15 3	51,845	0 1 1
1,697 2 5	219 14 3	...	60 0 0	2,177 0 8	...	1,698 0 8	239 0 0	240 0 0	...	2,177 0 8	20,942	0 1 7
4,246 2 0	737 10 0	...	23 8 3	5,007 4 3	...	5,007 4 3	...	...	...	5,007 4 3	6,751	0 11 10
4,775 4 0	1,222 8 8	...	86 11 0	6,084 7 8	...	2,420 0 8	3,502 4 0	162 3 0	...	6,084 7 8	33,543	0 2 11
2,198 8 10	817 9 10	...	39 5 6	3,055 8 2	...	1,975 6 8	881 8 0	198 9 6	...	3,055 8 2	15,361	0 3 2
15,820 12 1	4,022 9 8	...	407 14 3	20,251 4 0	...	13,648 5 4	5,211 1 1	1,391 13 7	...	20,251 4 0	1,28,442	0 2 6
1,800 4 5	1,056 5 6	...	69 1 6	2,945 11 5	...	2,628 8 0	56 12 4	260 7 1	...	2,945 11 5	35,632	0 1 4
2,187 0 0	1,082 14 0	...	60 0 0	3,329 14 0	...	2,788 14 0	...	541 0 0	...	3,329 14 0	31,870	0 1 8
1,688 7 4	894 2 3	...	49 2 0	2,631 11 7	...	2,141 12 9	286 6 10	203 8 0	...	2,631 11 7	20,472	0 2 1
3,333 1 11	848 1 4	...	70 0 0	4,251 3 3	...	2,197 5 4	1,823 6 6	230 7 5	...	4,251 3 3	37,807	0 1 9
1,587 10 8	1,665 8 9	...	52 0 0	3,305 3 5	...	3,090 12 10	...	214 6 7	...	3,305 3 5	15,542	0 3 4
10,596 8 4	5,546 15 10	...	320 3 6	16,463 11 8	...	12,847 4 11	2,166 9 8	1,449 13 1	...	16,463 11 8	1,41,323	0 1 10
57,240 14 7	21,911 7 5	...	2,736 12 7	81,889 2 7	...	60,239 6 8	11,390 8 0	10,259 3 11	...	81,889 2 7	9,42,370	0 1 4
8,385 12 3	3,038 2 9	...	548 11 7	11,972 10 7	...	11,972 10 7	...	...	...	11,972 10 7	...	...
3,582 6 7	1,174 2 9	...	524 15 8	5,281 9 0	...	5,281 9 0	...	...	...	5,281 9 0	...	...
8,544 6 10	2,591 8 6	...	200 0 0	11,335 15 4	...	11,335 15 4	...	...	...	11,335 15 4	...	...
20,512 9 8	6,803 14 0	...	1,273 11 3	28,590 2 11	...	28,590 2 11	...	...	...	28,590 2 11	...	...
77,753 8 3	28,715 5 5	...	4,010 7 10	1,10,479 5 6	...	88,829 9 7	11,390 8 0	10,259 3 11	...	1,10,479 5 6	9,42,370	0 1 10

B—DISPENSARY VACCINATION.

Statement No. III.—Showing Dispensary Vaccination in the Province of Bihar and Orissa during the year 1918-19.

District.	Number of dispensaries in each district to which a vaccinator is attached.	Average number of vaccinators attached to dispensaries during the year.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator.	Primary vaccination.					Re-vaccination.			Percentage of successful cases in which the results were known.		Percentage of unknown cases to total cases.	
					Total.	Successful.			Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
						Under one year.	Over one and under six years.	Total of all ages.								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Patna
Gaya
Shahabad
Saran
Champanan
Muzaffarpur
Darbhanga ...	1	1	141	141	139	50	89	139	...	2	...	2	100'00	...	...	100'00
Monghyr
Bhagalpur
Purnea
Santal Parganas
Cuttack
Balasore
Angul
Puri
Sambalpur...
Hazaribagh
Ranchi
Palamau
Manbhum
Singhbhum
Total ...	1	1	141	141	139	50	89	139	...	2	...	2	100'00	...	...	100.00

COMPARATIVE STATEMENT No. IV.

Comparative Statement No. IV.—Showing the number of persons primarily vaccinated, and the number of those per

Establishment.			Persons primarily							
			1909-10		1910-11		1911-12		1912-13	
			Total Number.	Number successfully vaccinated	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated
1			2	3	4	5	6	7	8	9
Government	...	...	...	...	...	...	...	...	...	...
Municipal	...	...	46,047	43,550	46,553	44,671	46,769	44,879	43,379	42,311
Local Fund	...	...	92,291	91,182	97,068	95,561	96,381	95,057	86,551	85,965
Dispensaries	...	...	586	472	516	415	384	303	188	185
Licensed Vaccinators	...	...	1,053,044	1,052,100	1,118,587	1,109,896	1,135,713	1,128,318	1,133,310	1,126,927
Total	...	...	1,191,968	1,187,304	1,232,724	1,248,543	1,279,247	1,268,497	1,263,428	1,255,388

sons who were successfully vaccinated in the Province of Bihar and Orissa in each of the undermentioned official years.

vaccinated.

1913-14		1914-15		1915-16		1916-17		1917-18		1918-19	
Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
10	11	12	13	14	15	16	17	18	19	20	21
...	...	649	515	10,277	10,046	3,963	3,441	6,984	6,050	6,637	5,941
44,167	42,480	47,235	45,310	43,099	41,631	38,645	37,226	37,586	36,107	36,573	35,213
82,592	81,790	76,264	75,266	94,056	84,636	80,353	73,103	82,772	77,911	59,639	56,495
186	186	178	176	285	215	202	202	181	177	139	139
1,149,467	1,143,922	1,114,753	1,109,554	1,065,023	1,059,266	922,991	913,264	931,549	926,281	816,096	811,506
1,276,412	1,268,368	1,239,079	1,230,821	1,212,740	1,195,824	1,046,154	1,027,236	1,059,072	1,046,526	919,084	909,294

Statement No. V.—Showing particulars of vaccination

District.	Total number of persons vaccinated.		Total number inspected—								Percentage of	
			By Deputy Sanitary Commissioners or Civil Surgeons.				By Native Superintendents or other Inspecting Officers.				By Deputy Sanitary Civil	
			Deputy Sanitary Commissioners.		Civil Surgeons.		District Inspectors.		Sub-Inspectors.		Deputy Sanitary Commissioners.	
	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.
1	2	3	4	5	6	7	8	9	10	11	12	13
Patna ...	68,726	1,127	...	...	619	290	21,018	...	21,145	...	..	...
Gaya ...	55,072	1,563	...	...	...	...	11,568	258	28,391	906	...	...
Shahabad ...	41,447	471	...	...	2,338	...	3,153	...	8,880	...	...	...
Saran ...	67,255	705	5,034	...	6,579	527	17,167	...	28,020	...	7.48	...
Champaran ...	50,041	983	3,904	...	5,408	347	6,980	...	12,012	...	7.80	...
Muzaffarpur ...	86,869	967	6,795	...	9,413	574	15,094	...	21,592	2	7.82	...
Darbhanga ...	86,831	315	8,655	...	4,032	226	18,552	11	30,056	...	9.96	...
Monghyr ...	56,502	192	85	...	3,118	...	8,934	32	15,928	31	15	...
Bhagalpur ...	56,811	3,849	8,150	...	6,891	...	16,503	...	35,345	2	14.34	...
Purnea ...	44,715	14,532	8,538	...	1,193	34	4,685	589	10,104	1,952	19.09	...
Santal Parganas ...	46,203	1,207	10,442	...	1,463	...	5,002	...	15,324	514	22.60	...
Cuttack ...	50,853	6,044	4,863	...	564	198	8,010	320	11,284	195	9.56	...
Balasore ...	19,995	4,931	2,501	...	314	318	2,127	61	2,889	133	12.51	...
Angul ...	4,368	3,174	2,017	...	1,082	...	1,346	546	1,779	1,297	46.17	...
Puri ...	34,374	427	3,874	...	341	54	9,496	...	14,594	...	11.27	...
Sambalpur ...	15,268	285	2,286	...	1,197	206	4,382	...	4,658	...	14.97	...
Hazaribagh ...	35,304	575	...	...	2,720	...	6,294	...	11,965	...	...	...
Ranchi ...	30,369	2,440	3,950	...	1,095	...	2,429	...	11,847	367	13.00	...
Palamau ...	16,258	4,505	...	...	2,189	2,343	3,519	49	7,322	79	...	...
Manbhum ...	36,630	3,712	3,106	...	469	1,131	362	...	2,345	...	8.47	...
Singhbhum ...	15,192	1,112	5,410	...	1,412	159	3,864	221	8,237	246	35.61	...
TOTAL ...	919,084	53,533	79,610	...	52,467	6,907	170,405	2,087	304,224	5,844	8.66	...

verified by Inspecting Officers during the year 1918-19.

Inspection to total number vaccinated.						Percentage of cases found successful to total number inspected.										Percentage of successful cases reported by vaccinators.	
Commissioners or Surgeons.		By Native Superintendents or other Inspecting Officers:				By Deputy Sanitary Commissioners or Civil Surgeons.				By Native Superintendents or other Inspecting Officers.							
Civil Surgeons.		District Inspectors.		Sub-Inspectors.		Deputy Sanitary Commissioners.		Civil Surgeons.		District Inspectors.		Sub-Inspectors.					
Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.				
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
90	25.73	30.58	...	30.76	...	...	...	97.25	52.75	97.85	...	98.36	...	86.81	55.72
...	...	21.04	16.24	51.55	62.72	...	...	...	...	94.07	94.13	90.54	43.57	99.37	87.53
5.71	...	7.67	...	21.44	...	...	...	95.69	...	99.46	...	98.22	...	98.05	60.24
9.78	74.75	25.60	...	41.66	...	94.16	...	98.58	59.57	98.70	...	92.20	...	96.71	79.96		
10.80	35.30	13.74	...	24.04	...	99.13	...	99.79	50.14	99.65	...	99.26	...	99.32	49.84		
1.08	59.35	17.37	...	24.85	20	84.93	...	95.52	61.84	96.38	...	95.11	...	99.20	45.54		
4.64	71.74	21.37	24.44	34.61	...	98.64	...	99.25	61.76	99.42	95	97.92	...	99.59	44.45		
5.51	...	15.81	16.66	28.19	16.14	100.00	...	99.83	...	99.76	53.12	99.41	35.48	99.94	51.53		
12.12	...	29.04	...	62.21	05	98.25	...	99.88	...	98.61	...	96.32	...	99.89	56.01		
2.64	23	11.14	4.02	22.50	13.62	79.19	...	91.14	76.46	98.37	53.51	91.29	68.01	99.45	67.01		
31.66	...	32	...	33.16	42.58	89.81	...	99.45	...	99.08	...	99.15	49.80	99.52	56.08		
11.09	3.27	15.75	5.29	20.22	3.22	66.62	...	99.29	30.80	99.63	30.31	99.68	43.58	98.41	29.69		
1.57	6.44	10.63	1.23	14.45	2.69	67.01	...	95.54	43.08	98.40	47.54	88.95	66.16	94.89	39.91		
24.77	...	30.81	17.20	40.72	40.86	59.94	...	95.28	...	96.95	81.68	94.27	90.2	92.46	85.44		
90	12.64	27.73	...	42.45	...	67.94	...	98.24	88.88	98.34	...	97.40	...	96.78	64.16		
7.11	72.28	28.70	...	30.50	...	85.82	...	99.66	82.52	96.21	...	97.83	...	99.76	76.47		
7.70	...	17.82	...	31.05	...	...	...	99.11	...	98.98	...	98.75	...	99.71	85.23
3.65	...	7.99	...	39.04	15.04	79.13	...	99.45	...	93.48	...	99.71	91.55	99.96	61.84		
13.46	65.32	21.64	1.08	45.08	1.75	...	...	98.67	100.00	96.95	100.00	99.98	100.00	98.75	90.01
1.28	30.46	98	...	7.82	...	82.87	...	100	77.36	91.71	...	81.55	...	86.96	76.58		
92.28	14.29	25.43	19.87	54.21	22.12	70.33	...	94.83	32.70	89.33	40.72	82.56	44.30	99.15	42.98		
5.78	12.94	18.54	3.90	23.10	10.95	84.64	...	98.42	77.19	97.91	74.74	96.12	77.82	97.93	62.20		

Statement No. VI.—Showing side by side the ratios, per 1,000 of population, of Deaths from

District.	1909-10		1910-11		1911-12		1912-13	
	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.
1	2	3	4	5	6	7	8	9
Patna ...	1.23	51,589	.30	45,665	.09	48,687	.07	48,768
Gaya ...	.62	74,725	.07	68,104	.07	69,923	.008	66,965
Shahabad ...	.67	46,311	.04	39,890	.02	36,809	.006	47,086
Saran ...	.84	76,930	.07	86,741	.03	83,221	.006	85,339
Champaran ...	.44	63,172	.02	59,887	.03	60,354	.07	55,486
Muzaffarpur ...	.22	98,808	.06	101,395	.05	102,535	.04	101,406
Darbhanga ...	.29	83,005	.07	84,025	.06	83,343	.01	93,546
Monghyr ...	.30	79,069	.11	85,497	.09	89,123	.08	84,475
Bhagalpur ...	.24	77,682	.26	74,438	.43	80,294	.41	77,274
Purnea ...	.36	61,698	.39	63,167	.24	59,409	.14	56,916
Santal Parganas ...	.36	67,015	.07	67,446	.08	61,909	.19	60,236
Cuttack ...	.12	134,160	.007	139,487	.002	153,747	.01	137,175
Balasore ...	.56	44,340	.41	56,052	.19	63,287	.006	68,271
Angul ...	...	7,602	...	9,353	...	8,207	...	5,906
Puri ...	.16	52,438	.007	53,738	.006	53,619	.02	55,642
Sambalpur ...	.04	27,124	.08	33,399	...	33,153	.04	23,953
Hazaribagh ...	.42	42,659	.01	50,075	.006	46,544	.02	46,150
Ranchi ...	.81	46,968	.07	57,541	.02	48,913	.004	51,096
Palamanu ...	1.42	81,133	.11	21,059	.008	24,782	...	23,683
Manbhum ...	.21	58,160	.01	60,086	.0006	60,420	.005	61,191
Singhbhum ...	.42	17,409	.08	26,593	.004	22,841	.05	20,254
Total ...	.45	1,241,997	.10	1,283,638	.08	1,288,620	.06	1,270,859

Small-pox and the number of successful vaccinations during the 10 years ending 1918-19.

1913-14		1914-15		1915-16		1916-17		1917-18		1918-19	
Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.
10	11	12	13	14	15	16	17	18	19	20	21
·17	48,480	·48	57,665	·71	68,438	·28	67,870	·15	68,529	·13	68,535
·03	67,817	·10	65,855	·68	75,641	·37	53,139	·18	62,246	·21	56,114
·09	53,812	·32	62,079	45	65,016	·26	51,176	·10	51,858	·02	41,625
·06	81,699	·06	80,739	·15	79,608	·27	74,895	·16	77,721	·07	66,413
·02	63,100	·10	64,146	·14	68,255	·07	49,091	·11	51,755	·14	50,191
·01	103,052	·09	105,292	·24	104,624	·20	88,702	·09	85,898	·02	86,664
·06	93,735	·24	97,760	·41	95,237	·28	96,020	·07	93,206	·08	86,555
·48	89,024	·46	89,749	·42	87,999	·17	67,229	·10	68,361	·05	56,576
·31	75,244	·35	75,831	·38	74,532	·22	66,899	·22	68,166	·09	59,034
·22	60,587	·30	58,496	·38	51,206	·33	53,018	·64	49,460	·52	54,209
·27	64,815	·18	53,182	·37	57,558	·43	46,826	·14	56,728	·06	46,659
·01	134,227	·06	113,297	·69	89,925	·46	73,415	·81	62,177	·89	51,845
·11	69,059	·90	53,281	·90	38,609	·24	22,178	·03	25,800	·09	20,942
...	7,945	...	7,680	·01	9,686	·15	9,226	·01	6,956	·06	6,751
·07	47,269	·02	33,820	·30	37,595	·52	29,228	·26	34,639	·75	33,543
·05	25,063	·02	27,561	·75	22,606	1·09	19,938	·24	23,343	·07	15,361
·02	51,777	·03	48,299	·49	46,709	·19	42,148	·07	39,751	·07	35,632
·01	49,989	·03	50,958	·12	52,111	·05	43,667	·03	47,094	·04	31,870
·07	21,459	·10	28,327	·17	31,808	·15	25,542	·06	26,893	·06	20,472
·02	61,316	·43	73,369	·63	54,056	·23	49,379	·02	52,289	·05	37,807
·09	23,496	·45	25,909	·28	19,526	·12	17,429	·09	17,872	·10	15,542
·11	1,292,965	·22	1,273,285	·42	1,230,745	·28	1,053,015	·19	1,070,784	·17	942,370

Statement No. VII.--Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1918-19.

District.		Towns.	Number of births dur- ing the year ending 31st March 1919.	Number of deaths amongst infants under one year during the year ending 31st March 1919.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1919.	Date of extension of Vacci- nation Act to town.
1		2	3	4	5	6
Patna	...	Patna ...	3,275	630	2,328	1st October 1884.
		Bihar ...	1,072	171	781	1st April 1887.
		Dinapur ...	1,010	166	674	28th January 1891.
		Barh ...	206	77	185	1st April 1887.
		Khagole ...	198	54	109	12th July 1910.
		Total ...	5,851	1,098	4,077	
Gaya	...	Gaya ...	2,203	615	995	1st January 1883.
		Tikari ...	135	29	102	3rd January 1891.
		Daudnagar ...	305	67	107	Ditto.
		Total ...	2,643	711	1,204	
Shahabad	...	Arrah ...	1,389	347	1,042	20th July 1885.
		Buxar ...	434	132	347	1st April 1887.
		Dumraon ...	436	82	151	Ditto.
		Jagadispur ...	279	54	267	20th December 1890.
		Sassaram ...	928	552	551	1st April 1887.
		Bhabhua ...	186	46	147	Ditto.
		Total ...	3,652	1,213	2,505	
Total of Patna Divi- sion.			12,146	3,022	7,786	
Saran	...	Chapra ...	1,434	347	560	1st April 1887.
		Revelganj ...	414	83	221	12th December 1890.
		Siwan ...	448	94	243	1st April 1887.
		Total ...	2,296	524	1,024	
Champaran	...	Motihari ...	420	93	348	1st April 1887.
		Bettiah ...	814	226	310	Ditto.
		Total ...	1,234	319	658	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1918-19—contd.

District.	Towns.	Number of births during the year ending 31st March 1919.	Number of deaths amongst infants under one year during the year ending 31st March 1919.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1919.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Muzaffarpur	Muzaffarpur	1,169	84	1,060	1st January 1886.
	Sitamarhi	379	72	218	1st April 1887.
	Hajipur	653	197	252	1st May 1890.
	Lalganj	293	72	214	1st April 1887.
	Total	2,494	425	1,744	
Darbhanga	Darbhanga	2,030	374	574	24th May 1884.
	Roserha	301	62	96	3rd January 1891.
	Samastipur	233	58	54	25th July 1910.
	Madhubani	515	58	48	1st April 1887.
	Total	3,079	552	772	
	Total of Tirhut Division.	9,103	1,820	4,198	
Monghyr	Monghyr	1,768	380	631	15th November 1882.
	Jamalpur	1,060	241	632	Ditto.
	Total	2,828	621	1,263	
Bhagalpur	Bhagalpur	1,616	335	679	15th February 1884; withdrawn on 16th October 1895; re-extended on 18th August 1898.
	Colgong	167	47	39	Ditto; re-extended on 19th December 1901.
	Total	1,783	382	718	
Purnea	Purnea	296	70	163	1st July 1887.
	Kishanganj	206	35	67	12th November 1892.
	Katihar	333	40	77	8th August 1910.
	Forbesganj	133	31	78	9th August 1912.
	Total	968	176	385	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1918-19—contd.

District.	Towns.	Number of births during the year ending 31st March 1919.	Number of deaths amongst infants under one year during the year ending 31st March 1919.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1919.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Santal Parganas ...	Sahibganj ...	462	101	263	1st May 1884.
	Deoghar ...	219	34	61	Ditto.
	Dumka ...	191	44	63	Notifications, dated the 9th April 1884, and 3rd August 1910.
	Madhupur ...	236	46	48	22nd August 1910,
	Total ...	1,108	225	435	
	Total of Bhagalpur Division.	6,687	1,404	2,801	
Cuttack ...	Cuttack ...	1,061	235	469	1st September 1884,
	Kendrapara ...	384	106	144	7th February 1888,
	Jajpur ...	334	87	69	Ditto,
	Total ...	1,779	428	682	
Balasore ...	Balasore ...	457	227	93	7th February 1888,
Puri ...	Puri ...	650	202	201	Ditto.
Sambalpur ...	Sambalpur ...	239	98	160	7th March 1895.
	Total of Orissa Division.	3,125	955	1,156	
Hazaribagh ...	Hazaribagh ...	536	123	247	1st January 1885.
	Chatra ...	293	76	140	1st August 1885.
	Giridih ...	282	43	109	8th September 1910,
	Total ...	1,111	242	496	
Ranchi ...	Ranchi ...	722	118	780	1st April 1887.
	Lohardaga ...	133	19	126	25th June 1892,
	Total ...	855	137	906	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1918-19—concl'd.

District.		Towns.	Number of births during the year ending 31st March 1919.	Number of deaths amongst infants under one year during the year ending 31st March 1919.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1919.	Date of extension of Vaccination Act to town.
1		2	3	4	5	6
Palamau	...	Daltonganj ...	269	48	107	9th October 1890.
		Purulia ...	356	61	310	1st January 1887.
Manbhum	...	Raghunathpur ...	156	43	17	9th February 1894.
		Jhalda ...	184	24	63	9th July 1892.
		Total ...	696	128	390	
		Chaibassa ...	308	79	198	20th June 1892.
Singhbhum	...	Chakradharpur ...	108	20	28	13th January 1919.
		Total ...	416	99	226	
		Total of Chota Nagpur Division.	3,078	606	2,018	
		Total for the Province	34,139	7,807	17,939	

Provincial Statement showing the different kinds of lymph

District.	Primary vaccination.											
	Direct from the calf.					With lanoline or glycerine lymph.					Arm-to-arm	
	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.
1	2	3	4	5	6	7	8	9	10	11	12	13
Patna	68,726	67,907	487	332	98·81	...	...
Gaya	55,073	54,723	276	74	99·36	...	...
Shahabad	41,447	41,154	216	77	99·29	...	...
Saran	67,255	66,022	539	694	98·16	...	...
Champaran	50,41	49,701	186	154	99·31	...	...
Muzaffarpur	86,869	86,212	591	66	99·24	...	...
Darbhanga	86,831	86,403	273	35	99·64	...	...
Monghyr	56,592	56,477	9	16	99·95	...	...
Bhagalpur	56,811	56,628	80	103	99·67	...	...
Purnea	44,715	44,471	208	36	99·45	...	...
Santal Parganas	46,203	45,982	85	136	99·52	...	...
Cuttack	50,853	50,048	198	607	98·41	...	...
Balasore	19,995	18,974	191	830	94·89	...	...
Angul	4,368	4,039	221	108	92·46	...	...
Puri	34,374	33,269	360	745	96·78	...	...
Sambalpur	15,268	15,153	35	80	99·24	...	...
Hazaribagh	35,304	35,142	154	8	99·54	...	...
Ranchi	30,369	30,361	7	1	99·97	...	...
Palamau	16,458	16,114	57	87	99·11	...	...
Maubhum	36,639	35,450	498	682	96·78	...	...
Singbhum	15,192	15,064	95	33	99·15	...	...
TOTAL	919,084	909,294	4,886	4,904	98·93	...	...

II.
sed and their rates of success during the year 1918-19.

Revaccination.																	
vaccination.			Direct from the calf.					With lanoline or glycerine lymph.					Arm-to-arm vaccination.				
Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
...	1,127	628	481	18	55.72	...	...	...	...	...
...	1,588	1,391	151	46	87.59	...	...	..	...	...
...	669	471	139	59	70.40	...	...	...	...	...
...	705	431	169	115	59.71	...	...	...	...	...
...	983	490	252	111	49.84	...	...	...	...	...
...	967	452	392	123	46.74	...	...	...	...	...
...	315	152	117	46	48.25	...	...	...	...	...
...	192	90	91	2	51.56	...	...	...	...	..
...	3,849	2,406	1,359	84	62.50	...	...	...	...	...
...	14,532	9,738	4,685	109	67.01	...	...	...	...	...
...	1,207	677	508	22	56.03	...	...	...	...	...
...	6,044	1,797	3,023	1,222	29.73	...	...	...	...	...
...	4,931	1,968	606	2,357	39.91	...	...	...	...	...
...	3,174	2,712	368	94	85.44	...	...	...	...	...
...	427	274	82	71	64.16	...	...	...	...	...
...	285	208	64	13	72.98	...	...	...	...	...
...	575	490	65	20	85.22	...	...	...	...	...
...	2,440	1,509	9.0	21	61.84	...	...	...	...	...
...	4,505	4,358	84	63	96.73	...	...	...	...	...
...	3,712	2,357	1,111	2.4	63.49	...	...	...	...	...
...	1,112	478	554	80	42.98	...	...	...	...	...
...	53,339	33,076	15,343	4,920	62.01	...	...	...	...	...



